UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
SOLID WASTE AND EMERGENCY
RESPONSE

June 25, 2007

MEMORANDUM

SUBJECT: National Remedy Review Board Recommendations for the Picayune Wood Treating, Inc. Superfund Site

FROM: David E. Cooper, Chair
National Remedy Review Board David E. Cooper

TO: Franklin Hill, Acting Director
Superfund Division
U.S. EPA Region 4

Purpose

The National Remedy Review Board (the Board) has completed its review of the proposed cleanup action for the Picayune Wood Treating, Inc. Superfund Site in Picayune, Mississippi. This memorandum documents the Board's advisory recommendations.

Context for Board Review

The Administrator announced the Board as one of the October 1995 Superfund Administrative Reforms to help control response costs and promote consistent and cost-effective decisions. The Board furthers these goals by providing a cross-regional, management-level, "real time" review of high cost proposed response actions prior to their being issued for public comment. The Board reviews all proposed cleanup actions that exceed its cost-based review criteria.

The Board evaluates the proposed actions for consistency with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and relevant Superfund policy and guidance. It focuses on the nature and complexity of the site; health and environmental risks; the range of alternatives that address site risks; the quality and reasonableness of the cost estimates for alternatives; regional, state/tribal, and other stakeholder opinions on the proposed actions; and any other relevant factors.

Generally, the Board makes advisory recommendations to the appropriate regional decision maker. The Region will then include these recommendations in the administrative record for the site, typically before it issues the proposed cleanup plan for public comment.

While the Region is expected to give the board's recommendations substantial weight, other important factors, such as subsequent public comment or technical analyses of response options, may influence the Region's final decision. The Board expects the Regional decision maker to respond in writing to its recommendations within a reasonable period of time, noting in particular how the recommendations influenced the proposed cleanup decision, including any effect on the estimated cost of the action. It is important to remember that the Board does not change the Agency's current delegations or alter in any way the public's role in site decisions.

Overview of the Proposed Action

The Picayune Wood Treating Site is a former wood pressure-treating facility that operated from 1945 to 1999. The operator utilized creosote and pentachlorophenol in the treatment process. Ground water is contaminated in two distinct plumes linked to two former surface impoundments. The contaminant plumes consist of dissolved phase contaminants and dense non-aqueous phase liquids (DNAPL). Surface soil contamination, attributed to spills and leaks, is widespread and encompasses the entire 30-acre site. The Region's draft preferred remedial alternative for the site soils consists of excavation, consolidation, and capping. For ground water, the Region's draft preferred alternative consists of containment using vertical barrier walls and treatment of contaminated ground water outside the containment area.

NRRB Advisory Recommendations

The Board reviewed the information package describing this proposal and discussed related issues with Michael Taylor and Derek Matory of your staff on June 5, 2007. Based on this review and discussion, the Board offers the following comments:

1. The Board has the following comments concerning cost estimates included in the package presented to the Board:

- The text of the package included cap components in Appendix A which were not included in cost tables (e.g., the geosynthetic drainage layer and the HDPE liner) and could impact the total cost of the preferred alternative. The Board recommends that the cost estimate be revised to add the missing items.
- Dust control and air monitoring were included in the cost estimate presented to the Board but the information was not detailed enough for the Board to evaluate the appropriateness of the estimate. The Board recommends that additional detail be provided in the decision documents.
- Numerous unit costs (e.g., excavation, geosynthetic clay liner) appear to differ significantly from unit costs for sites elsewhere in the Region. The Board recommends that unit costs be reevaluated to ensure that they are accurate.

2. It is not clear whether soil sampling proceeded to "Below Site Cleanup Goals" in all directions. Data presented in Figure 4-1 suggests that sampling should be extended west and south of grid block SS-58, south and east of SS-89, and north of blocks SS-34 and S-35. All of these grid blocks exceed the commercial/industrial cleanup goals, but appear to be on the outside

edge of the sampling grid. The Region indicated that additional sampling would be included in the remedial design phase. The Board encourages the Region to sample appropriate areas beyond the gridded blocks as part of that additional characterization.

3. The package presented to the Board did not discuss the State classification of the Citronelle Aquifer and its relevance to remedial action objectives (RAOs) for ground water at the site. The Board recommends that the Region coordinate with the State to determine the appropriate ground water use classification and that the Region then develop corresponding RAOs. The package currently presents RAOs as restoring use as drinking water. If this changes, the Board recommends that the Region reevaluate additional, potentially less aggressive, ground water alternatives, such as monitored natural attenuation, for the dissolved plume.

4. The package was unclear about which specific ARARs the remedy has to meet for soil and ground water. The Region should describe in the decision documents what the ARARs are for the site and how they will be met or waived.

5. The preferred alternative (GW3) discussed the possibility of using one or two in-situ treatment technologies (ISCO and enhanced bioremediation) and/or an ex-situ technology (ground water flushing). However, the package did not include criteria that would be used to select the final remedy or how the costs and remedial time-frames associated with each remedy or combinations of technologies may differ. Due to the expected differences between in-situ and ex-situ technologies, the Board recommends that they be evaluated separately, including separate cost estimates and remedial time-frames.

6. The Board was unable to evaluate the expected effectiveness of the proposed ground water remedy. No operation and maintenance (O&M) costs were included for the preferred ground water alternative, suggesting that ground water remediation is expected to occur very quickly. However, it is not clear if any of the identified technologies can meet the cleanup levels in a short time period given the existing contaminant concentrations. The Board recommends that a more thorough and realistic evaluation of ground water alternatives, including the timeframe to achieve cleanup goals and points of compliance to be monitored, be undertaken prior to selecting a ground water remedy for the site, and the results of this evaluation be included in decision documents for the site. This evaluation should include consideration of the location and effectiveness of the barrier walls, because it appears that the preferred alternative would leave DNAPL outside the barrier walls. See comment 9 below.

7. The preferred remedial alternative for ground water contamination relies on a vertical engineered barrier to contain contaminant sources. Installation of the barrier, particularly keying the base of the barrier into the low permeability Graham Ferry Formation, is essential to the success of the remedy. However, this may be a difficult task. The package indicates that the upper surface Graham Ferry Formation is present at a depth of approximately 75 ft below ground surface, which would be approximately 50-55 ft below the water table. The ability to key a barrier wall into an underlying low permeability unit becomes more challenging as the depth to that unit increase and even more difficult if the saturated thickness is large. Both factors (depth

and saturated thickness) increase the degree of difficulty in this situation. Given plans for in-situ flushing as part of the combined remedy (which implies injection and extraction wells, potentially in the vicinity of the barrier walls) and the already interesting subsurface hydraulics (the presence of an artesian well inside one of the containment zones), extreme care must be taken to make sure a continuous, impermeable seal occurs when the barrier is keyed into the Graham Ferry. The Region should acknowledge this issue in decision documents and address it in future design/decision documents.

8. The Board notes that the package presented to the Board identified a range of barrier wall techniques that could be used at the site (e.g., slurry wall, sheet pile wall), but deferred the selection of the appropriate technique to the remedial design. The Board recommends that Region include in the decision documents a discussion of how the selection of barrier technology will be made (e.g., what criteria will be used) and the range of costs involved.

9. The package did not include estimates of contaminant mass in surface soil, the vadose zone and the shallow aquifer within and outside the proposed containment zones. The Board is concerned that if significant DNAPL mass would remain outside the proposed containment zone, the proposed dissolved phase ground water remedy may not be effective. In addition, if there is not significant contaminant mass in vadose zone areas proposed for excavation, the Board is concerned that excavating those areas may not be cost-effective. The Board recommends that, if it has not already been done as part of the Feasibility Study, the Region evaluate the distribution of contaminant mass and use that information to inform the selection of the preferred alternative. This evaluation may lead to modifying the boundaries of the containment and treatment zones to result in a more effective remedy at reduced cost, or it may support the existing proposed boundaries and costs. In either case, an expanded discussion of contaminant mass distribution would strengthen the decision documents.

For example, the remedy includes a subsurface barrier to contain the DNAPL and highly contaminated ground water in the westerly trench impoundment area and the easterly central processing area, but not the easterly wastewater treatment DNAPL area. Depending on the results of a future pilot study, in-situ treatment by chemical oxidation may be effective in treating the contaminated ground water outside the two proposed containment walls, but is not likely to be adequate to treat the third southeast DNAPL area if significant mass is present as DNAPL. The Board recommends the Region further evaluate the likelihood of significant DNAPL presence in the third area (the Board further notes that Figure 4-2 appears to show a larger area of potential high contaminant concentration than that outlined in Figure 4-4). If significant DNAPL is likely to be present, the Board recommends that the Region consider addressing it by extending the containment wall or using another means to ensure that achieving ground water ARARs is practical, timely, and cost-effective. The Board notes that the decision to expand the barrier wall would not necessarily limit reuse options. For example, some area within a barrier wall could be covered by a building or an asphalt cap used as a parking lot.

In addition, the identification of major areas of contaminant mass may help the Region identify any principal threat wastes that may be present. If principal threat wastes are present,

the decision documents should explain to what extent the proposed remedy includes treatment of them; and if treatment is not preferred, the reasons for that approach.

10. The Board understands that the natural gas line crossing the site must be relocated in order for the remedial action to be implemented. The Board recommends that the Region include the relocation of this line in decision documents as part of the remedy and that it continue its work with the City to ensure that it be done in a timely fashion.

11. Within the package presented to the Board, no ecologically-based remedial alternatives were presented for the wetland area in the northern portion of the site. Ecological risks are assumed to be addressed in the Mill Creek drainage and residential areas as a result of the planned removal action. For the main portion of the site, the proposed remediation to industrial standards is portrayed as meeting the goal of ecological protectiveness. However, the wetland area is not covered under either action presented but may be contaminated, leaving an apparent gap in meeting the threshold criteria for remedy protectiveness. The Board recommends that the Region discuss in the decision documents the extent of contamination within the northern wetland area. In addition, to the extent necessary, specific ecologically-based remedy goals should be presented, inclusive of the total high molecular weight and total low molecular weight polycyclic aromatic hydrocarbons (PAHs), not only human health risk driver contaminants of concern (COCs). The Board recommends that if unacceptable ecological risks from PAHs are identified in the wetland area, then monitored natural attenuation (MNA) should be among the alternatives evaluated for remediation.

12. The package indicated that institutional controls (ICs) would be necessary to protect certain components of the remedy (cap, slurry wall, wells, etc.), limit use of the remainder of the site property, and prevent ground water use. However, the package did not include information about what type of ICs are envisioned or who would implement them. The Board recommends that the decision documents clarify these details and that the Region consider restrictive covenants for site use. Also, the Region should determine whether a local ordinance preventing ground water use needs to be in place until ground water cleanup levels are met.

13. The Board notes that no comments on any aspect of the recommended cleanup plan were provided by any of the stakeholders (i.e., State of Mississippi, City of Picayune, or residents). Nonetheless, during the Board meeting, the Region indicated that the State was advocating a lower cleanup level for dioxin in soils than that identified as part of the preferred alternative. The Board supports the Region's approach to establish cleanup goals based on the Agency's dioxin policy and to continue working with all stakeholders, particularly the State, to reach resolution on soil cleanup levels.

14. The package presented to the Board (e.g., Tables 3-1and 3-2) established human health risk–based remedial goals for benzo(a)pyrene (BaP) toxicity equivalence quotients (TEQ) in soils at the 10^{-6} risk level. While this approach is consistent with the point of departure in the NCP, the Board recommends that the Region also consider evaluating BaP TEQ soil remedial goals at the 10^{-5} and 10^{-4} risk levels. These additional soil remedial goals can be used to develop

variations of the existing soil alternatives in order to provide an evaluation of the cost-effectiveness of the proposed remedial alternative as compared to other potentially viable alternatives.

15. The risk information included in the package (e.g., Table 2-1) indicates that arsenic is responsible for both cancer risk and non cancer risk at the site; however, there is no discussion of arsenic in the remediation goals. At the meeting, the Region indicated that arsenic contamination is not related to the site nor is it being addressed as part of the remedy. The decision documents should explain why arsenic does not need to be addressed as part of this remedy.

16. The package indicated that PCP soil remedial goals are based on ground water protection cleanup values assuming a dilution attenuation factor (DAF) of 1. The Board notes that this is a very conservative assumption and that a DAF of 20 is recommended in EPA's soil screening guidance (Soil Screening Guidance: User's Guide, EPA540/R-96/018, April 1996, page 30). The Board suggests that the Region evaluate whether this assumption is reasonable (e.g. organic carbon content, water solubility, depth to ground water, ground water velocity), whether changing it would impact the cleanup volumes and costs, and whether other assumptions should be developed instead.

17. In the package presented to the Board, it is unclear when operation and maintenance (O&M) becomes the responsibility of the State. The preferred alternative includes both containment and restoration remedies for ground water. The containment part of the remedy would be the responsibility of the State once the remedy is constructed and is determined to be operational and functional (O&F). The restoration part of the remedy may remain the responsibility of EPA for up to ten years after the remedy is determined to be O&F before being transferred to the State. The Board recommends that the decision documents clarify the O&M requirements for both the containment and restoration portions of the preferred alternative.

The Board appreciates the Region's efforts in working together with the potentially responsible parties, State, and community groups at this site. We request that a draft response to these findings be included with the draft Proposed Plan when it is forwarded to your OSRTI Regional Support Branch for review. The Regional Support Branch will work with both me and your staff to resolve any remaining issues prior to your release of the Proposed Plan. Once your response is final and made part of the site's Administrative Record, then a copy of this letter and your response will be posted on the Board website (http://www.epa.gov/superfund/programs/nrrb/).

Thank you for your support and the support of your managers and staff in preparing for this review. Please call me at (703) 603-8763 should you have any questions.

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